Remarks/Arguments

Claims 1-9 remain pending in this case. Claims 7 and 8 are objected to as being dependent upon a rejected base claim. Claims 7 and 8 have been rewritten in independent form including all of the limitations ob the base claim 1.

Claims 1-3, 5 & 9 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Curry (US 5946103) in view of Bauer et al. (US 6176908). Claim 4 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Curry (US 5946103) in view of Bauer et al. (US 6176908) as applied to claims 1-3, 5 & 9 above, and further in view of Lent et al. (US 5837042). Claim 6 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Curry (US 5946103) in view of Bauer et al. (US 61 76908) as applied to claims 1-3, 5 & 9 above, and further in view of Connell et al. (US 5554842). Applicant respectfully traverses the rejections.

The Examiner has found that Curry discloses a method for producing indicium on article including the steps of providing a supply of multi-signal transmission ink which is adapted an optically visual signal when viewed in normal daylight and adapted to provide to provide a different signal which is adapted to machine readable *(the Examiner cites the Abstract and col. 6, line 40 to col. 7, line 25)*; and printing at least portion of the indicium on the article by drop on demand or continuous printing the multi-signal transmission ink, wherein portion is adapted to be visually observable in normal day light *(the Examiner cites col. 8, lines 15-60)*, and the portion is adapted to be read as a non-halftone signal by a machine even though the portion is halftone printed *(the Examiner cites the Abstract and col. 7, lines 20-66)*. Applicant disagrees.

Curry discloses printing halftone patterns using trusted printers that produce a high performance halftone shape that can be used to spatially embed data in printed documents. Curry discloses serpentine shape that is difficult to copy because it would require access to a printer capable of printing the serpentine shape. Curry does not disclose or suggest providing a supply of ink comprising a multi-signal transmission ink

which is adapted to provide an optically visual signal when viewed in normal daylight and adapted to provide a different signal which is adapted to be machine readable. Curry requires that the shapes be printed by trusted printers so that the proper resolution of the halftone shape can be used to spatially embed data.

Contrary to the Examiner's remarks in the Office Action, the excerpts cited by the Examiner do not disclose or suggest the instant invention. Specifically, Curry does not disclose the multi-signal transmission ink as set forth in claims 1-9. The Abstract in Curry on discloses

> Predetermined machine and/or human readable information is embedded in at least one serpentine pattern that is printed on each original document, so that any given instance of such a document can be later verified or refuted as being the original by determining whether this information can be recovered from the document or not.

At col. 6, line 40 to col. 7, line 25, Curry describes tone reproduction, but does not describe or suggest the use of multi-signal transmission ink which is adapted to provide an optically visual signal when viewed in normal daylight and adapted to provide a different signal which is adapted to be machine readable. At col. 7, lines 20-66, Curry describes data embedding in color, not reading as a non-halftone signal by machine even though the portion is halftone printed.

Although Curry discloses embedding predetermined machine and/or human readable information in halftone patterns during the printing of original documents by a trusted printer, Curry does not disclose or suggest any difference in the signal when read by a machine. In fact, Curry discloses that an advantage of his invention is that the serpentine these structures have the advantage of being human readable with the aid of a magnifying glass, and do not require the use of an input scanner or computer. See col. 11, lines 36-38.

The Examiner admits that Curry differs from the present invention in that the multi-signal transmission ink comprises color fluorescent ink, wherein the color fluorescent ink provides an increased percentage of print growth relative to non-fluorescent ink to

provide enlarged print growth per pixel. The Examiner relies on Bauer et al. for the fluorescent aspects to the instant invention. However, because of the aforementioned reasons differences between Curry and the instant invention, Curry combined with Bauer et al do not teach or suggest the present invention. Furthermore, Applicant's response to the previous Office Action details the differences between Bauer et al and the instant invention.

Neither Curry nor Bauer et al., alone or in combination, teach or suggest printing at least a portion of the indicium on the article by halftone printing multi-signal transmission ink, wherein the portion is visually observable as a halftoned signal in normal daylight, and wherein the portion is read as a non-halftoned signal by a machine even though the portion is halftone printed. Furthermore, although Curry discloses printing using halftone images, Curry does not teach or suggest printing halftone images using multi-signal transmission ink. Thus, Applicants submit that neither Curry nor Bauer et al. the very combination suggested by the Examiner.

The present invention is directed to a method for printing indicium on an article using a multi-signal transmission ink which is adapted to provide an optically visual signal when viewed in normal daylight and adapted to provide a different signal when read by a machine. The method includes printing at least a portion of the indicium on the article by halftone printing the multi-signal transmission ink. The portion is adapted to be visually observable as a halftoned signal in normal daylight, and to be read as a non-halftoned signal by a machine even though the portion is halftone printed. Referring to paragraphs [0045] and [0046] of the instant application (emphasis added):

> ... In a preferred embodiment, the controller 48 is adapted to control the print head system 46 to print the ink as a dithered or halftoned image. In printing, dithering, which is different from gray scaling, is usually called halftoning. Halftoning comprises reducing the number of dots which form a pattern or image. **Halftoning is usually used to create the illusion of new colors and shades by varying the pattern of dots. Newspaper photographs, for example, are often dithered.** If you look closely, you can see that different shades of gray are produced by varying the patterns of black and white dots. There are no gray dots at all, merely black dots and white areas.

> Referring back to Fig. 2, the two-dimensional bar code section 20 was printed by the system 60 with the use of halftoning. **More specifically, the bar code section 20 was produced with a 45 percent quantity of fill; i.e., 55 percent less dots or fill than a full 100 percent fill or use of all the dots to form the image shown in Fig. 1.** The image shown in Fig. 3 is a negative image of the image shown in Fig. 2. **It has been discovered that the fluorescent image produced under ultraviolet light by the bar code section 20 with a 45 percent fill is substantially the same as the fluorescent image produced under ultraviolet light by the bar code section 20 with a 100 percent fill.**

Referring further to paragraph [0065] (emphasis added):

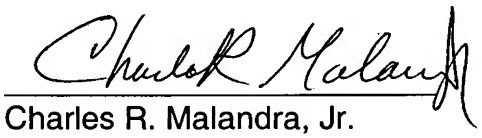
> Since fluorescence intensity is proportional with the concentration on the paper at low concentrations, and reaches a plateau at higher concentrations less than 100 percent of fill, it is possible to define various levels of fluorescence at increasing concentrations. **Various levels of fluorescence can be defined as "gray levels of fluorescence" similar to gray level of colored and especially of black inks.** The dependence of various concentrations of fluorescence on area coverage can be measured by measuring fluorescence intensity with a fluorometer. The fluorescence intensity measurements can be important to this concept and, an inexpensive and low-cost sensor can be developed for this purpose for adoption in printing devices or postage meters. **The present invention comprises use of high intensity fluorescent images combined with visual images (to identify the presence of the print) in order to improve print quality characteristics, such as contrast, fill area and modulation due to the advantages obtained by measuring the fluorescence. The print growth, which is higher in fluorescence, can compensate for the lower usage of ink that would otherwise be accompanied by regular black-and-white contrast.**

In view of the above, claim 1 is directed to printing indicium on an article using a multi-signal transmission ink that is adapted to provide an optically visual signal when viewed in normal daylight and to provide a different signal when being read by machine. At least a portion of the indicium is printed on the article by halftone printing the multi-signal transmission ink, wherein **the portion is visually observable as a halftoned signal in normal daylight, and is read as a non-halftoned signal by a machine even though the portion is halftone printed.**

For at least the above reasons, Applicant respectfully submits that claim 1 is allowable over the prior art of record. Each of the remaining claims is dependent on claim 1, and therefore includes the limitations of claim 1. The references to Lent et al. and Connell et al. do not overcome the above deficiencies. Accordingly, Applicant respectfully submits that claims 2-9, dependent upon claim 1, are allowable along with claim 1 and on their own merits.

In view of the foregoing remarks, it is respectfully submitted that the claims of this application are now in a condition for allowance and favorable action thereon is requested.

Respectfully submitted,



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